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Date: **APR 24 2013**
Symbol: ENV-RCRA-13-00081
LAUR: 13-22819

Ms. Jan Walker
U.S. Environmental Protection Agency, Region 6
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Received
APR 25 2013
6EN-W

Dear Ms. Walker:

SUBJECT: LOS ALAMOS NATIONAL LABORATORY, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. NM0028355, QUARTERLY PROGRESS REPORT (JANUARY 1, 2013 – MARCH 31, 2013)

The NPDES Permit No. NM0028355 issued to the U. S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) for the Los Alamos National Laboratory requires the permittees to submit quarterly progress reports to the U. S. Environmental Protection Agency (EPA) regarding the status of attainment of the state water quality standards-based effluent limits. This letter and Enclosure 1 serves as the twenty-third Quarterly Progress Report for the performance period January 1, 2013 through March 31, 2013. The information in Enclosure 1 was provided by the responsible managers for each activity.

Please contact Michael T. Saladen, LANS at (505) 665-6085 or Gene E. Turner, DOE at (505) 667-5794 if you need additional information concerning the status of the Laboratory's corrective action activities.

Sincerely,

Anthony R. Grieggs
Group Leader
WQ & RCRA Group (ENV-RCRA)
Los Alamos National Security LLC

Sincerely,

Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Los Alamos Field Office
U.S. Department of Energy

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AMD:GET:MAB/lm

Enclosure: 1. NPDES Permit No. NM0028355, Quarterly Progress Report, January 2013 – March 2013

Cy: Bruce Yurdin, NMED/SWQB, Santa Fe, NM, w/enc.
Peter Maggiore, NA-OO-LA, w/enc., (E-File)
Gene E. Turner, NA-OO-LA, w/enc., (E-File)
George R. Rael, NA-OO-LA, w/enc., (E-File)
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ENCLOSURE 1

NPDES Permit No. NM0028355, Quarterly Progress
Report,
January 2013 – March 2013

ENV-RCRA-13-00081

LAUR-13-22819

Date: APR 24 2013

ENCLOSURE 1

NPDES Permit No. NM0028355, Quarterly Progress Report, January 2013 – March 2013

The Permittees have divided facilities into five stand alone projects (groups). A summary of each group is provided below:

Group 1:

- Sanitary Effluent Reclamation Facility (SERF)/TA-46 Sanitary Wastewater System (SWWS), Outfall 001/Outfall 13S: In July 2012, the U.S. Department of Energy, and Los Alamos National Security, LLC (DOE/LANS) completed construction on an expansion of the SERF. The expansion included the addition of the following:

A new 3,000 square foot building which houses the following:

1. Three new micro filter treatment units
2. Three new reverse osmosis (RO) treatment units
3. New process tanks

A new 400,000 gallon blended water storage tank was also included.

SERF product water is being blended with reuse water from the TA-46 SWWS Plant at a 4:1 ratio (four parts SERF water to one part SWWS water). SERF will be capable of producing blended water for reuse by cooling towers at approximately 300 gallons per minute (gpm), a significant increase over the pre-expansion production rate of approximately 100 gpm.

In order to accommodate the increase in RO reject discharges from the expanded SERF, the capacities of the SERF evaporation basins on Sigma Mesa have also been increased. Two additional evaporation basins were constructed adjacent to the existing basins. The new basins' design followed that of the existing basins: two synthetic liners with a leak collection and monitoring system. Adding two new basins approximately doubled the previous capacity.

SERF Status January 2013 – March 2013:

- SERF continues to operate on a regular basis sending blended water to Outfall 001 and to the Strategic Computing Complex for use as cooling tower make-up water.
- Due to a failed pipe valve union on a pipe from the hydrochloric acid tank, SERF ceased treating sanitary effluent late on January 30, 2013. Notifications of the bypass of treatment were made to Environmental Protection Agency (EPA) and the New Mexico Environment Department, Surface Water Quality Bureau (NMED-SWQB) as required in the NPDES permit.

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- Moisture has been detected in the leak detection system in three of the four SERF evaporation basins. Two of the basins have leaks in the liner that were previously identified. In these basins, further leaking is being avoided by maintaining the basin level below the level of the leak until repairs can be made. The source of the leak in the third basin is still under investigation.
- **NPDES Permit Exceedance, Outfall 001 During Bypass Of SERF Treatment**
Compliance samples were collected at Outfall 001 during the bypass on January 31, 2013. The total PCB result was 0.00107 ug/L, which is above the permit limit of 0.00064 ug/L. EPA and NMED-SWQB were again notified of the permit exceedance as required in the NPDES permit. The pipe valve union was repaired and the SERF was back in operation within twenty-four hours.
- On February 27, 2013, ENV-RCRA personnel observed discoloration on rocks and further down-slope in the area north of the secondary containment between the main processing buildings at SERF. There is a pipe above the discoloration that originates from a sump in an open secondary containment pad where chemical transfers occur. Operators at the facility neutralize (if necessary) the contents of the sump to a pH between 6.0 s.u. and 9.0 s.u. verify there is no oil sheen before releasing the contents. They confirmed that contents of the sump can consist of rain water, snowmelt, dirt, pad rinse water, and residual amounts of chemicals related to the transfer activities. Discharges from the sump to the discharge pipe have been halted, the valve to the discharge pipe has been locked out, and the valve cover tack-welded in place.
- A Compliance Evaluation Inspection (CEI) was conducted at the SERF on March 12, 2013 by NMED-SWQB. The CEI Report was submitted to EPA on April 11, 2013. LANS/DOE received a copy on April 12, 2013. DOE/LANS will provide a formal response to the CEI Report including corrective actions.
- **Strategic Computing Complex (SCC) and the Laboratory Data Communication Center (LDCC) Cooling Towers, (03A027 and 03A199, respectively):** The SCC and LDCC cooling tower outfalls do not have metals or PCB compliance issues. SERF continues process adjustments to determine the optimum blend ratio to satisfy the Strategic Computing Center (SCC) cooling tower make-up water requirements. When SERF product water is used at the SCC, blowdown from the cooling tower to Outfall 03A027 is sampled for PCBs and E. Coli. The total PCB result from a sample collected at Outfall 03A027 on November 15, 2012 was below detection limits using EPA Method 1668A.

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Weekly sampling for E. Coli weekly began in November 2012. There continues to be no compliance issues, to date.

- o SERF continues to operate on a regular basis sending treated water to the Strategic Computing Complex (SCC) for use in the cooling towers.

CY 2013 Month	Days SERF Product Water Sent To SCC	Average Volume SERF Product Water For Makeup At SCC (gal/day)
Jan	16	78,931
Feb	12	82,050
Mar	21	78,367

Group 2:

- Radioactive Liquid Waste Treatment Facility (RLWTF), Outfall 051:
On March 2, 2010 DOE/LANS submitted the Final Report on Toxicity Reduction Evaluation (TRE) activities at RLWTF for failed whole effluent toxicity (WET) tests. The Permittees previously submitted the TRE Action Plan and Schedule on January 31, 2008 and provided quarterly status reports to EPA. On March 22, 2011 LANS, DOE and EPA representatives discussed the facility's WET test results in great detail. LANS representatives discussed corrective actions completed to address metals toxicity, and potential strategies for identifying non-metallic toxicity. On March 28, 2011 DOE/LANS provided an update on the evaluation of technologies for the removal of toxicity caused by organics in the RLWTF effluent. The March 28th letter outlined a path forward for potential corrective actions, including timelines for completion. A follow up conference call with EPA, LANS and DOE representatives was conducted on June 15, 2011. Based on EPA guidance, the Permittees continued working with EPA staff to develop a protocol for hardness to be restored to the WET tests performed on operational or compliance aqueous samples from the RLWTF. EPA approved the following corrective actions on June 21, 2011. Listed below are the corrective actions and the modified schedule based on the June 15, 2011 approval from EPA.

1. Develop a protocol to restore hardness in the RLWTF effluent WET tests to the levels found in LANL groundwater per EPA guidance.

Completed: Protocol was developed with Pacific EcoRisk (PER) on 07/29/11.

2. Evaluate WET test results on RLWTF operational and compliance effluent samples when hardness is restored in the WET test water to the natural

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concentrations found in LANL groundwater. Work Plan requirements include the collection and analyses of 14 standard US EPA acute toxicity tests with *Daphnia pulex*; 14 tests with hardness restored; 6 Phase I Toxicity Identification Evaluations (TIEs); and, 3 Phase II TIEs.

Work Plan from 12/2011 through 06/2012: The contract with PER through Test America to perform hardness restoration work has been approved. A Work Plan was developed and the funding request (\$123K) was approved by LANS management.

Sampling results for December 2011 – June 2012 have been received and evaluated (in December 2011, one of the 14 planned samples was inadvertently not collected). Thirteen (13) standard US EPA acute toxicity tests with *Daphnia pulex* without hardness restored and 13 tests with hardness restored at the analytical test facility have been completed. The results from the 12 tests that were toxic prior to hardness being restored indicate that restoration of hardness removes toxicity to *Daphnia pulex* from the water (one of the 13 tests was not toxic prior to restoration of hardness, and was not toxic after hardness was restored).

3. Completed Steps #1 and #2 indicate a reduction in toxicity when hardness is restored. EPA approved the RLWTF plan to restore hardness in treated RLWTF effluent to the natural concentrations found in LANL groundwater at the May 9, 2012 meeting. Personnel from the RLWTF developed a protocol to restore hardness in the RLWTF effluent water per EPA guidance on August 21, 2012.
4. Evaluate WET test results on RLWTF operational and final effluent samples when the RLWTF restores hardness at the facility to the natural concentrations found in the DOE/LANS tap water.

Four large-scale tests were conducted during October 2012. Effluent was prepared in batches of 3000 gallons or more. The following actions were conducted on each batch: (i) sampled without hardness restored for toxicity testing, (ii) hardness was restored to the natural levels in LANL groundwater and, (iii) sampled a second time for toxicity testing with the hardness restored. This large-scale testing provided four large-scale toxicity test results without hardness restoration, and four test results with hardness restored. The first three large-scale toxicity tests revealed no toxicity in the low hardness or the restored hardness samples.

The fourth large-scale toxicity test did show toxicity in the low hardness sample, but the restored hardness sample did not show toxicity.

Completed: Tests completed, results submitted to EPA December 10, 2012. Response from EPA is still pending as of March 31, 2013.

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5. If required, perform Toxicity Identification Evaluations (TIEs) on operational or compliance effluent samples to determine the identity of any non-metallic source of toxicity in RLWTF effluent.

Estimated Date of Completion: Dependent on outcome of number 4.

- TA-55 Cooling Towers, Outfall 03A181: Design work to tie in the cooling tower effluent to the SWWS or SERF cross country line was completed. However, funding for the project was cancelled. Due to the completion of upgrades to the Facility, the tie-in will require additional design work and construction costs will increase substantially. No change as of March 31, 2013
- TA-35 National High Magnetic Field Laboratory (NHMFL) Cooling Tower, Outfall 03A160: An ion exchange system has been installed and the system is treating water. Effluent water samples have been taken and analysis indicates the effluent is well below permitted discharge limits. The metals interim measure is considered complete. NHMFL is currently evaluating a strategy to eliminate the blow-down discharge to the environment, by connecting the cooling tower to the SWWS facility. Tentative Schedule:
 - Submit Engineering Design Analysis to SWWS: July 15, 2013
 - Submit Funding Request for design: September 15, 2013
 - Submit Funding Request for construction: April 20, 2014
 - Completion of construction: TBD

Group 3:

- TA-53 Los Alamos Neutron Science Center (LANSCE) Cooling Tower, Outfall 03A048: The Technical Area (TA)-53 Zero Liquid Discharge (ZLD) Project Engineering Study (completed in July 2010) evaluated options for cooling tower water treatment to achieve greater water conservation and to achieve ZLD.

The preferred alternative for a TA-53 Water Treatment Facility or LANSCE Cooling Water Treatment Facility (LCWTF) combines nano-filtration (membrane softening) with reverse osmosis to remove hardness, silica, and excess total dissolved solids and minimize the required flow capacity of the LCWTF by reducing the blow down volumes from the cooling towers as a result of improved makeup water quality. This alternative uses fewer chemicals and produces less solid waste than the options using chemical precipitation. Additionally, the preferred alternative was the most cost-effective solution based on capital cost of process equipment and operation and maintenance costs. However, the cost is significant at greater than \$20M to construct

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and yearly operation and maintenance costs of approximately \$800K. As of March 31, 2013, there is no funding available to proceed.

Group 4:

- Chemistry and Metallurgy Research (CMR) Air Washers, Outfall 03A021: The final remedy for the CMR is complete. EPA officially deleted NPDES Outfall 03A021 from the DOE/LANS permit on October 11, 2011.
- Sigma/Beryllium Test Facility Cooling Towers, Outfall 03A022: As documented in the Permittee's October 2011 NPDES quarterly report, the long term solution was to connect the cooling tower blow-down to the SWWS Plant. The ion exchange (IX) treatment system is in place, but not active and the holding tanks remain in place. Future discharges at Outfall 03A022 will be limited to once through cooling that may be needed to address off-normal conditions at the facility requiring emergency cooling. In the out years, the Sigma facility will initiate a feasibility study for the replacement and/or modification of existing cooling tower to increase efficiency. On December 6, 2011, DOE/LANS notified EPA that the cooling tower blow-down from NPDES Outfall 03A022 was connected to the SWWS Plant on November 16, 2011.

Group 5:

- TA-15 Dual-Axis Radiographic Hydrodynamic Test (DARHT) Cooling Tower/Septic Effluent, Outfall 03A185: The DARHT cooling tower and facility septic system were connected to the TA-46 SWWS collection system. EPA officially deleted NPDES Outfall 03A185 from the DOE/LANS permit on October 11, 2011.

Other Activities:

- TA-11 Cooling Tower, Outfall 03A130: The project was completed on April 30, 2010. EPA officially deleted NPDES Outfall 03A130 from the DOE/LANS permit on October 11, 2011.
- Outfall Reduction Program: Based on the SERF Expansion project, DOE/LANS will significantly reduce flows at Outfalls 001 and 03A027 by recycling treated effluent. Outfalls 03A022, 03A160, 05A055, 13S, and 051 have the potential to become no-flow outfalls but will remain in the NPDES permit. No change as of March 31, 2013.
- Zero Liquid Discharge (ZLD) Tanks Project: The Permittees have completed numerous changes at the RLWTF to comply with the very stringent zinc and copper limits. The RLWTF has constructed new concrete evaporation tanks at Technical Area 52 to receive fully treated radioactive liquid effluent from RLWTF. These tanks are constructed to reduce the volume of treated effluent being discharged through NPDES Outfall 051. The construction allows for passive evaporation of treated RLWTF effluent. DOE/LANS submitted a Notice of Planned Change to EPA in May 2007 regarding the construction of the ZLD Tanks. Construction of the ZLD tanks was completed on September 28,

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2012. Use of the ZLD tanks must await the issuance of a Groundwater Discharge Permit by the New Mexico Environment Department. No change as of March 31, 2013.

- On July 18, 2012, a representative from EPA Region 6 conducted a Compliance Evaluation Inspection at Outfalls 001, 03A048, 03A160 and 13S. The final report from EPA Region 6 is pending. No change as of March 31, 2013.
- Supplemental reapplication information and a Notice of Planned Change were submitted to EPA Region 6 on August 15, 2012. The purpose was to inform EPA of a change in sewage sludge disposal practice at the DOE/LANS' Sanitary Wastewater System (SWWS) facility. DOE/LANS will begin composting biosolids upon approval by the New Mexico Environment Department's Solid Waste Bureau. No change as of March 31, 2013.

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Report,
January 2013 – March 2013**

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- Sanitary Effluent Reclamation Facility (SERF)/TA-46 Sanitary Wastewater System (SWWS), Outfall 001/Outfall 13S: In July 2012, the U.S. Department of Energy, and Los Alamos National Security, LLC (DOE/LANS) completed construction on an expansion of the SERF. The expansion included the addition of the following:

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Group 2:

- Radioactive Liquid Waste Treatment Facility (RLWTF), Outfall 051:
On March 2, 2010 DOE/LANS submitted the Final Report on Toxicity Reduction Evaluation (TRE) activities at RLWTF for failed whole effluent toxicity (WET) tests. The Permittees previously submitted the TRE Action Plan and Schedule on January 31, 2008 and provided quarterly status reports to EPA. On March 22, 2011 LANS, DOE and EPA representatives discussed the facility's WET test results in great detail. LANS representatives discussed corrective actions completed to address metals toxicity, and potential strategies for identifying non-metallic toxicity. On March 28, 2011 DOE/LANS provided an update on the evaluation of technologies for the removal of toxicity caused by organics in the RLWTF effluent. The March 28th letter outlined a path forward for potential corrective actions, including timelines for completion. A follow up conference call with EPA, LANS and DOE representatives was conducted on June 15, 2011. Based on EPA guidance, the Permittees continued working with EPA staff to develop a protocol for hardness to be restored to the WET tests performed on operational or compliance aqueous samples from the RLWTF. EPA approved the following corrective actions on June 21, 2011. Listed below are the corrective actions and the modified schedule based on the June 15, 2011 approval from EPA.
 1. Develop a protocol to restore hardness in the RLWTF effluent WET tests to the levels found in LANL groundwater per EPA guidance.

Completed: Protocol was developed with Pacific EcoRisk (PER) on 07/29/11.
 2. Evaluate WET test results on RLWTF operational and compliance effluent samples when hardness is restored in the WET test water to the natural

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concentrations found in LANL groundwater. Work Plan requirements include the collection and analyses of 14 standard US EPA acute toxicity tests with *Daphnia pulex*; 14 tests with hardness restored; 6 Phase I Toxicity Identification Evaluations (TIEs); and, 3 Phase II TIEs.

Work Plan from 12/2011 through 06/2012: The contract with PER through Test America to perform hardness restoration work has been approved. A Work Plan was developed and the funding request (\$123K) was approved by LANS management.

Sampling results for December 2011 – June 2012 have been received and evaluated (in December 2011, one of the 14 planned samples was inadvertently not collected). Thirteen (13) standard US EPA acute toxicity tests with *Daphnia pulex* without hardness restored and 13 tests with hardness restored at the analytical test facility have been completed. The results from the 12 tests that were toxic prior to hardness being restored indicate that restoration of hardness removes toxicity to *Daphnia pulex* from the water (one of the 13 tests was not toxic prior to restoration of hardness, and was not toxic after hardness was restored).

3. Completed Steps #1 and #2 indicate a reduction in toxicity when hardness is restored. EPA approved the RLWTF plan to restore hardness in treated RLWTF effluent to the natural concentrations found in LANL groundwater at the May 9, 2012 meeting. Personnel from the RLWTF developed a protocol to restore hardness in the RLWTF effluent water per EPA guidance on August 21, 2012.
4. Evaluate WET test results on RLWTF operational and final effluent samples when the RLWTF restores hardness at the facility to the natural concentrations found in the DOE/LANS tap water.

Four large-scale tests were conducted during October 2012. Effluent was prepared in batches of 3000 gallons or more. The following actions were conducted on each batch: (i) sampled without hardness restored for toxicity testing, (ii) hardness was restored to the natural levels in LANL groundwater and, (iii) sampled a second time for toxicity testing with the hardness restored. This large-scale testing provided four large-scale toxicity test results without hardness restoration, and four test results with hardness restored. The first three large-scale toxicity tests revealed no toxicity in the low hardness or the restored hardness samples.

The fourth large-scale toxicity test did show toxicity in the low hardness sample, but the restored hardness sample did not show toxicity.

Completed: Tests completed, results submitted to EPA December 10, 2012. Response from EPA is still pending as of March 31, 2013.

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5. If required, perform Toxicity Identification Evaluations (TIEs) on operational or compliance effluent samples to determine the identity of any non-metallic source of toxicity in RLWTF effluent.

Estimated Date of Completion: Dependent on outcome of number 4.

- TA-55 Cooling Towers, Outfall 03A181: Design work to tie in the cooling tower effluent to the SWWS or SERF cross country line was completed. However, funding for the project was cancelled. Due to the completion of upgrades to the Facility, the tie-in will require additional design work and construction costs will increase substantially. No change as of March 31, 2013
- TA-35 National High Magnetic Field Laboratory (NHMFL) Cooling Tower, Outfall 03A160: An ion exchange system has been installed and the system is treating water. Effluent water samples have been taken and analysis indicates the effluent is well below permitted discharge limits. The metals interim measure is considered complete. NHMFL is currently evaluating a strategy to eliminate the blow-down discharge to the environment, by connecting the cooling tower to the SWWS facility. Tentative Schedule:
 - Submit Engineering Design Analysis to SWWS: July 15, 2013
 - Submit Funding Request for design: September 15, 2013
 - Submit Funding Request for construction: April 20, 2014
 - Completion of construction: TBD

Group 3:

- TA-53 Los Alamos Neutron Science Center (LANSCE) Cooling Tower, Outfall 03A048: The Technical Area (TA)-53 Zero Liquid Discharge (ZLD) Project Engineering Study (completed in July 2010) evaluated options for cooling tower water treatment to achieve greater water conservation and to achieve ZLD.

The preferred alternative for a TA-53 Water Treatment Facility or LANSCE Cooling Water Treatment Facility (LCWTF) combines nano-filtration (membrane softening) with reverse osmosis to remove hardness, silica, and excess total dissolved solids and minimize the required flow capacity of the LCWTF by reducing the blow down volumes from the cooling towers as a result of improved makeup water quality. This alternative uses fewer chemicals and produces less solid waste than the options using chemical precipitation. Additionally, the preferred alternative was the most cost-effective solution based on capital cost of process equipment and operation and maintenance costs. However, the cost is significant at greater than \$20M to construct

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and yearly operation and maintenance costs of approximately \$800K. As of March 31, 2013, there is no funding available to proceed.

Group 4:

- Chemistry and Metallurgy Research (CMR) Air Washers, Outfall 03A021: The final remedy for the CMR is complete. EPA officially deleted NPDES Outfall 03A021 from the DOE/LANS permit on October 11, 2011.
- Sigma/Beryllium Test Facility Cooling Towers, Outfall 03A022: As documented in the Permittee's October 2011 NPDES quarterly report, the long term solution was to connect the cooling tower blow-down to the SWWS Plant. The ion exchange (IX) treatment system is in place, but not active and the holding tanks remain in place. Future discharges at Outfall 03A022 will be limited to once through cooling that may be needed to address off-normal conditions at the facility requiring emergency cooling. In the out years, the Sigma facility will initiate a feasibility study for the replacement and/or modification of existing cooling tower to increase efficiency. On December 6, 2011, DOE/LANS notified EPA that the cooling tower blow-down from NPDES Outfall 03A022 was connected to the SWWS Plant on November 16, 2011.

Group 5:

- TA-15 Dual-Axis Radiographic Hydrodynamic Test (DARHT) Cooling Tower/Septic Effluent, Outfall 03A185: The DARHT cooling tower and facility septic system were connected to the TA-46 SWWS collection system. EPA officially deleted NPDES Outfall 03A185 from the DOE/LANS permit on October 11, 2011.

Other Activities:

- TA-11 Cooling Tower, Outfall 03A130: The project was completed on April 30, 2010. EPA officially deleted NPDES Outfall 03A130 from the DOE/LANS permit on October 11, 2011.
- Outfall Reduction Program: Based on the SERF Expansion project, DOE/LANS will significantly reduce flows at Outfalls 001 and 03A027 by recycling treated effluent. Outfalls 03A022, 03A160, 05A055, 13S, and 051 have the potential to become no-flow outfalls but will remain in the NPDES permit. No change as of March 31, 2013.
- Zero Liquid Discharge (ZLD) Tanks Project: The Permittees have completed numerous changes at the RLWTF to comply with the very stringent zinc and copper limits. The RLWTF has constructed new concrete evaporation tanks at Technical Area 52 to receive fully treated radioactive liquid effluent from RLWTF. These tanks are constructed to reduce the volume of treated effluent being discharged through NPDES Outfall 051. The construction allows for passive evaporation of treated RLWTF effluent. DOE/LANS submitted a Notice of Planned Change to EPA in May 2007 regarding the construction of the ZLD Tanks. Construction of the ZLD tanks was completed on September 28,

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2012. Use of the ZLD tanks must await the issuance of a Groundwater Discharge Permit by the New Mexico Environment Department. No change as of March 31, 2013.

- On July 18, 2012, a representative from EPA Region 6 conducted a Compliance Evaluation Inspection at Outfalls 001, 03A048, 03A160 and 13S. The final report from EPA Region 6 is pending. No change as of March 31, 2013.
- Supplemental reapplication information and a Notice of Planned Change were submitted to EPA Region 6 on August 15, 2012. The purpose was to inform EPA of a change in sewage sludge disposal practice at the DOE/LANS' Sanitary Wastewater System (SWWS) facility. DOE/LANS will begin composting biosolids upon approval by the New Mexico Environment Department's Solid Waste Bureau. No change as of March 31, 2013.



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Los Alamos, New Mexico 87545
(505) 667-5794/FAX (505) 667-5948*

*Date: JAN 22 2013
Refer To: ENV-RCRA-13-0016
LAUR: 13-20175*

Ms. Hannah Branning
U.S. Environmental Protection Agency, Region 6
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

*1 - Permit/CD
2 - AO & AO matl
3 - LMR's
4 - Vio. Sum. Log
5 - NCR
6 - Correspondence
7 - CRAS
Date Filed
Clerk's Inits.*

Dear Ms. Branning:

SUBJECT: LOS ALAMOS NATIONAL LABORATORY, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. NM0028355, QUARTERLY PROGRESS REPORT (OCTOBER 1, 2012 – DECEMBER 31, 2012)

The NPDES Permit No. NM0028355 issued to the U. S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) for the Los Alamos National Laboratory requires the permittees to submit quarterly progress reports to the U. S. Environmental Protection Agency (EPA) regarding the status of attainment of the state water quality standards-based effluent limits. This letter and Enclosure 1 serves as the twenty-second Quarterly Progress Report for the performance period October 1, 2012 through December 31, 2012. The information in Enclosure 1 was provided by the responsible managers for each activity.

032213

Please contact Michael T. Saladen, LANS at (505) 665-6085 or Gene E. Turner, DOE at (505) 667-5794 if you need additional information concerning the status of the Laboratory's corrective action activities.

Sincerely,



Anthony R. Grieggs
Group Leader
Water Quality & RCRA Group (ENV-RCRA)
Los Alamos National Security, LLC

Sincerely,



Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Los Alamos Site Office
U.S. Department of Energy

Enclosure: 1. NPDES Permit No. NM0028355, Quarterly Progress Report,
October 2012 – December 2012

ARG:GET:MAB/lm

Cy: Richard Powell, NMED/SWQB, Santa Fe, NM, w/enc.
Peter Maggiore, LASO-EPO, w/enc., (E-File)
Gene E. Turner, LASO-EPO, w/enc., (E-File)
George R. Rael, LASO-NSM, w/enc., (E-File)
Isaac M. Valdez, LASO-NSM, w/enc., (E-File)
Carl A. Beard, PADOPS, w/o enc., A102
Michael T. Brandt, ADESH, w/o enc., (E-File)
Alison M. Dorries, ENV-DO, w/o enc., (E-File)
Kenneth J. Schlindwein, OI-PO, w/enc., (E-File)
Craig S. Leasure, PADWP, w/enc., (E-File)
Jeffrey J. Schroeder, MOF-PM4 w/enc., (E-File)
Michael T. Saladen, ENV-RCRA, w/enc., (E-File)
Robert S. Beers, ENV-RCRA, w/enc., K490
Robert M. Wingo, C-CDE, w/enc., (E-File)
Cynthia Blackwell, LC-LESH, w/enc., (E-File)
LASOmailbox@nnsa.doe.gov, w/enc., (E-File)
IRM-RMMSO, w/enc., (E-File)
ENV-RCRA Correspondence File, w/enc., K490

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ENV-RCRA-13-0016

LAUR-13-20175

Date: JAN 22 2013

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The Permittees have divided facilities into five stand alone projects (groups). A summary of each group is provided below:

Group 1:

- Sanitary Reclamation Recycling Facility (SERF)/TA-46 Sanitary Wastewater System (SWWS), Outfall 001/Outfall 13S: In July 2011, the U.S. Department of Energy, and Los Alamos National Security, LLC (DOE/LANS) began construction on an expansion of the SERF. The expansion included the addition of the following:

A new 3,000 square foot building which houses the following:

1. Three new micro filter treatment units
2. Three new reverse osmosis (RO) treatment units
3. New process tanks

A new 400,000 gallon blended water storage tank was also included.

SERF product water is being blended with reuse water from the TA-46 SWWS Plant at a ratio between approximately 1.25 parts SERF water to one part SWWS water (1.25:1) and four parts SERF water to one part SWWS water (4:1). Process adjustments continue in order to determine the optimum blend ratio to satisfy the Strategic Computing Center (SCC) cooling tower make-up water requirements while still meeting the new PCB permit limit at Outfall 001 which became effective on July 31, 2012. SERF will be capable of producing blended water for reuse by cooling towers at approximately 300 gallons per minute (gpm), a significant increase over the current production rate of approximately 100 gpm.

In order to accommodate the increase in RO reject discharges from the expanded SERF, the capacities of the SERF evaporation basins on Sigma Mesa have also been increased. Two additional evaporation basins were constructed adjacent to the existing basins approximately doubling the previous capacity. The new basins' design followed that of the existing basins: two synthetic liners with a leak collection and monitoring system. Adding two new basins approximately doubled the previous capacity.

SERF Status October 2012 – December 2012:

- SERF continues to operate on a regular basis sending treated water to the SCC for use in the cooling tower and to Outfall 001. PCB concentration at Outfall 001 on October 23, 2012 was 565 pg/L (permit limit = 640 pg/L).

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- Moisture has been detected in the leak detection system in 3 of the 4 SERF evaporation basins. Investigations are on-going to determine the source of the moisture.

- TA-3 Power Plant, Outfall 001:

Strategic Computing Complex (SCC) and the Laboratory Data Communication Center (LDCC) Cooling Towers, (03A027 and 03A199, respectively): The SCC and LDCC cooling tower outfalls do not have metals or PCB compliance issues. SERF continues process adjustments to determine the optimum blend ratio to satisfy the Strategic Computing Center (SCC) cooling tower make-up water requirements. When SERF product water is used at the SCC, blowdown from the cooling tower to Outfall 03A027 will be sampled for PCBs and E. Coli. The PCB result from a sample collected at Outfall 03A027 on November 15, 2012 was 0 pg/L. Weekly sampling for E. Coli weekly began in November 2012. There are no compliance issues to date.

Group 2:

- Radioactive Liquid Waste Treatment Facility (RLWTF), Outfall 051:

On March 2, 2010 DOE/LANS submitted the Final Report on Toxicity Reduction Evaluation (TRE) activities at RLWTF for failed whole effluent toxicity (WET) tests. The Permittees previously submitted the TRE Action Plan and Schedule on January 31, 2008 and provided quarterly status reports to EPA. On March 22, 2011 LANS, DOE and EPA representatives discussed the facility's WET test results in great detail. LANS representatives discussed corrective actions completed to address metals toxicity, and potential strategies for identifying non-metallic toxicity. On March 28, 2011 DOE/LANS provided an update on the evaluation of technologies for the removal of toxicity caused by organics in the RLWTF effluent. The March 28th letter outlined a path forward for potential corrective actions, including timelines for completion. A follow up conference call with EPA, LANS and DOE representatives was conducted on June 15, 2011. Based on EPA guidance, the Permittees continued working with EPA staff to develop a protocol for hardness to be restored to the WET tests performed on operational or compliance aqueous samples from the RLWTF. EPA approved the following corrective actions on June 21, 2011. Listed below are the corrective actions and the modified schedule based on the June 15, 2011 approval from EPA.

1. Develop a protocol to restore hardness in the RLWTF effluent WET tests to the levels found in LANL tap water per EPA guidance.

Completed: Protocol was developed with Pacific EcoRisk (PER) on 07/29/11

2. Evaluate WET test results on RLWTF operational and compliance effluent samples when hardness is restored in the WET test water to the natural

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concentrations found in LANL tap water. Work Plan requirements include the collection and analyses of 14 standard US EPA acute toxicity tests with *Daphnia pulex*; 14 tests with hardness restored; 6 Phase I Toxicity Identification Evaluations (TIEs); and, 3 Phase II TIEs.

Work Plan from 12/2011 through 06/2012: The contract with PER through Test America to perform hardness restoration work has been approved. A Work Plan was developed and the funding request (\$123K) was approved by LANS management.

Sampling results for December 2011 – June 2012 have been received and evaluated. Thirteen (13) standard US EPA acute toxicity tests with *Daphnia pulex* without hardness restored and 13 tests with hardness restored at the analytical test facility have been completed. The results from the 12 tests that were toxic prior to hardness being restored indicate that restoration of hardness removes toxicity to *Daphnia pulex* from the water (one of the 13 tests was not toxic prior to restoration of hardness, and was not toxic after hardness was restored).

3. Completed Steps #1 and #2 indicate a reduction in toxicity when hardness is restored. EPA approved the RLWTF plan to restore hardness in treated RLWTF effluent to the natural concentrations found in LANL tap water at the May 9, 2012 meeting. Personnel from the RLWTF developed a protocol to restore hardness in the RLWTF effluent water per EPA guidance on August 21, 2012.
4. Evaluate WET test results on RLWTF operational and final effluent samples when the RLWTF restores hardness at the facility to the natural concentrations found in the DOE/LANS tap water.

Four large-scale tests were conducted during October 2012. Effluent was prepared in batches of 3000 gallons or more. Each batch (i) was sampled without hardness restored for toxicity testing, (ii) had hardness restored to the natural levels in Los Alamos groundwater, and (iii) was sampled a second time for toxicity testing with the hardness restored. This large-scale testing provided four large-scale toxicity test results without hardness restoration, and four test results with hardness restored. The first three large-scale toxicity tests revealed no toxicity in the low hardness or the restored hardness samples.

The fourth large-scale toxicity test did show toxicity in the low hardness sample, but the restored hardness sample did not show toxicity.

Completed: Tests completed, results submitted to EPA December 10, 2012.

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5. If required, perform Toxicity Identification Evaluations (TIEs) on operational or compliance effluent samples to determine the identity of any non-metallic source of toxicity in RLWTF effluent.

Estimated Date of Completion: Dependent on outcome of number 4.

- TA-55 Cooling Towers, Outfall 03A181: Design work to tie in the cooling tower effluent to the SWWS or SERF cross country was completed. However, funding for the project was cancelled. Due to the completion upgrades to the Facility, the tie-in will require additional design work and construction costs will increase substantially.
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Group 4:

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NPDES Permit Exceedance, Outfall 03A022:

November 26, 2012: The monthly compliance total copper result was 0.604 mg/L from a sample collected November 26, 2012 at 3:24 P.M. This exceeds the permit limits of 0.019 mg/L monthly average and 0.028 mg/L daily maximum. The cause of the exceedance was a stuck make-up water float valve that maintains the level of the circulating water tank inside the building. Overflow from this system discharged to Outfall 03A022 without treatment. Facility personnel corrected the stuck make-up water float valve the evening of November 26, 2012. It is estimated the valve was stuck for approximately 40 hours.

Group 5:

- TA-15 Dual-Axis Radiographic Hydrodynamic Test (DARHT) Cooling Tower/Septic Effluent, Outfall 03A185: The DARHT cooling tower and facility septic system were connected to the TA-46 SWWS collection system. EPA officially deleted NPDES Outfall 03A185 from the DOE/LANS permit on October 11, 2011.

Other Activities:

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Outfalls 03A022, 03A160, 05A055, 13S, and 051 have the potential to become no-flow outfalls but will remain in the NPDES permit.

- EPA Meeting on May 9, 2012: Mike Saladen and Terrill Lemke, Water Quality and RCRA (ENV-RCRA), Steve Veenis, Project Management Field Services (PMFS-DO), and Kate Lynnes, Regulatory Support & Performance (REG-SP), representing Los Alamos National Security, LLC (LANS) and Gene Turner from the U. S. Department of Energy (DOE) met with Isaac Chen, Diana McDonald, Everett Spencer, Hannah Branning and Cathy Bius of the U.S. Environmental Protection Agency (EPA), Region VI on May 9, 2012. LANS, DOE and EPA representatives met to discuss the LANS/DOE's National Pollutant Discharge Elimination System (NPDES) Permit Programs for NPDES Outfalls and Storm Water, NPDES Permit No. NM0028355 and NM0030759, respectively. A summary can be found in the EPA meeting minutes letter submitted to EPA on July 2, 2012.
- Zero Liquid Discharge (ZLD) Tanks Project: The Permittees have completed numerous changes at the RLWTF to comply with the very stringent zinc and copper limits. The RLWTF has constructed new concrete evaporation tanks at Technical Area 52 to receive fully treated radioactive liquid effluent from RLWTF. These tanks are constructed to reduce the volume of treated effluent being discharged through NPDES Outfall 051. The construction allows for passive evaporation of treated RLWTF effluent. DOE/LANS submitted a Notice of Planned Change to EPA in May 2007 regarding the construction of the ZLD Tanks. Construction of the ZLD tanks was completed on September 28, 2012. Use of the ZLD tanks must await the issuance of a Groundwater Discharge Permit by the New Mexico Environment Department.
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